BULLETIN

OF THE INSTITUTE OF METALS

VOLUME 2 OCTOBER 1953 PART 2

INSTITUTE NEWS

Informal Discussion on "The Training of Metallurgists for Industry", London, Friday, 27 November 1953

An Informal Discussion on "The Training of Metallurgists for Industry", arranged by the Metallurgical Engineering Committee, will be held in the Lecture Theatre of The Royal Institution, Albemarle Street, London, W.1, on Friday, 27 November 1953. There will be two sessions, from 10.30 a.m. to 12.45 p.m., and 2.15 p.m. to 4.30 p.m. The morning session will be devoted mainly to the requirements of industry (ferrous, non-ferrous, and extraction) and the afternoon session mainly to attempts by the teaching professions to meet the needs of industry.

At each session, a few invited speakers, representative of different interests, will open the discussion, but otherwise the discussion will be open and informal.

Members of all the metallurgical societies, trade associations, management associations and other bodies concerned with this problem, and representatives of the teaching professions in the universities and technical colleges will be welcome at the meeting; tickets of admission are *not* required.

It is hoped that, in view of the wide interest in the subject, the meeting will be well attended and that full advantage will be taken of this opportunity for the public exchange of ideas and experience, which may produce fruitful results in the future training and employment of metallurgists.

Reduced Rate of Subscription for Members Retired from Active Professional Life

Members who have retired from their main professional occupation, are not less than 65 years of age, and have been members of the Institute for not less than 25 years, may claim the privilege of paying a reduced rate of annual subscription on application to the Secretary.

Publication of Short Notes in the Journal

Members and others are reminded that the Publication Committee is willing to consider original communications of a length not exceeding 800 words for publication in the *Journal* as one-page notes. Such notes will be judged by the same standards as those applied to ordinary papers, but, if acceptable, they will be given a high priority in publication and will appear with the minimum possible delay. Examples of such notes will be found on pp. 214, 254, and 432 of Volume 81 (1952–53) of the *Journal*.

Monograph No. 13: Properties of Metallic Surfaces

A volume, containing 13 papers and a report of a valuable discussion on this subject, has now been published by the Institute as Monograph and Report Series No. 13.

In octavo format, printed on imitation art paper and bound attractively in cloth, this book contains 376 pages with numerous illustrations in the text. It will prove invaluable to all whose work is concerned with any aspect of metal surfaces.

The published price of the book is £1 15*s.* or $5.50, post free; each member of the Institute may purchase one copy at the special privileged rate of 17*s.* 0*d.* or $3.0.

Monograph No. 15: The Control of Quality in the Production of Wrought Non-Ferrous Metals. I.—The Control of Quality in Melting and Casting

This book is in the press, and it is expected that it will be published soon after this issue of the *Journal* reaches Members.

Subscriptions can now be received at the rates quoted below, and the volumes will be despatched to purchasers immediately on receipt from the printer.

Members (one copy only at) .	7*s.* 6*d.* or $1.50, post free.
Non-members . . .	15*s.* 0*d.* or $2.50 ,, ,,
Libraries	12*s.* 6*d.* or $1.95 ,, ,,

Annotated Equilibrium Diagram: Copper–Silver System

This Annotated Equilibrium Diagram (No. 10 of the series), prepared by Dr. J. C. Chaston, is now in the press. Copies may be ordered at the following rates:

Members (one copy only at) .	1*s.* 0*d.* or $0.40
Non-members . . .	2*s.* 0*d.* or $0.50
Libraries	1*s.* 8*d.* or $0.40

Papers Submitted for Publication

The Publication Committee wishes to direct attention to its rule, published frequently in its "Notes to Authors of Papers for the Journal", that all communications regarding MSS. submitted for publication must be addressed to The Editor. Such communications should in no case be sent to individual Members of the Council or of the Committee.

Decennial Index to "Metallurgical Abstracts", New Series, Volumes 1–10 (1934–1943)

The Index is being issued in two volumes: Volume I.—Name Index and Volume II.—Subject Index.

Volume I (Names) has already been published in the form of a cloth-bound book, octavo format, of 516 pages. Volume II is in the press.

The books may not be purchased separately. The subscription prices for the two volumes are as follow:

Members . .	£4 4*s.* or $ 12.20, post free
Non-Members .	£5 5*s.* or $15.50 post free
Libraries . .	£4 7*s.* 6*d.* or $12.70 post free

The ten volumes of "Metallurgical Abstracts", with their detailed indexes, form an invaluable and unique source of reference to the world's literature of general and non-ferrous metallurgy for the period which they cover.

Members may be interested to know that the preparation of the MS. of the subsequent decennial index, covering Volumes 11–20 (1944–1953) of "Metallurgical Abstracts" is almost completed. The preparation of the MS. for publication will be proceeded with immediately after the index now in the press has been published.

Abstracting of Russian Literature

The Editor would be interested to hear of any Members with a knowledge of Russian and access to Russian scientific or technical journals, who would be prepared to make abstracts for *Metallurgical Abstracts*.

Election of Members

The following 50 Ordinary Members, 2 Junior Members, and 9 Student Members were elected on 24 August:

As Ordinary Members

ADAMS, Clyde Melvin, Jr., Sc.D., Assistant Professor, Department of Metallurgy, Massachusetts Institute of Technology, Cambridge 39, Mass., U.S.A.

BARBOUR, Alfred R., A.B., Secretary-Treasurer, Roessing Bronze Company, Butler Plank Road, Etna, Pittsburgh 23, Pa., U.S.A.

CHAPIN, Edward John, M.S., Head, Non-Ferrous Alloys Branch, Metallurgy Division, Naval Research Laboratory, Washington 25, D.C., U.S.A.

DAY, Maurice Jerome, M.S., Ph.D., Assistant Director, Armour Research Foundation, Technology Centre, Chicago 16, Ill., U.S.A.

DEARDEN, Thomas R., Assistant to Plant Engineer, Lewin-Mathes Company, Lewin Metals Division, 1111 Chouteau Street, St. Louis, Mo., U.S.A.

DUMVILLE, *Lieut.-Colonel* William George, M.C., T.D., Assistant Sales Manager, British Insulated Callender's Cables, Ltd., Prescot, Lancs.

DURRER, *Professor* Robert, Dr.Ing., Dr.mont. h.c., Professor of Metallurgy, Eidgenössische Technische Hochschule, Zürich, Switzerland.

DUTTWEILER, Alfred F., Jr., B.S., Universal Die Casting and Manufacturing Corporation, 232 Monroe Street, Saline, Mich., U.S.A.

ELLCOCK, Douglas William, Works Manager, Abbey Dropforgings, Ltd., Churchbridge Works, Cannock, Staffs.

EPLETT, Albert Douglas, B.S., Director of Research, Manning, Maxwell and Moore, Inc., Stratford, Conn., U.S.A.

FAHLMAN, John Emil, B.S., Met.E., Director of Procurement, The Permold Company, P.O. Box No. 70, Medina, Ohio, U.S.A.

FLETCHER, Andrew, Ph.B., Hon.D.Eng., President, St. Joseph Lead Company, 250 Park Avenue, New York 17, N.Y., U.S.A.; President, American Institute of Mining and Metallurgical Engineers.

GANDINI, Alessandro, Dott.Ing., Works Manager, Società Metallurgica Italiana, Campo Tizzoro (Pistoia), Italy.

GAUSSENS, Jean, Directeur de l'Usine, Compagnie Française des Métaux, Castelsarrasin (Tarn et Garonne), France.

GOFFEY, Arthur, M.Sc., Chief Metallurgist, D. Napier and Son, Ltd., East Lancashire Road, Liverpool 10.

HAY, Robert Henderson, M.Sc., Ph.D., Head, Physics and Physical Metallurgy Divisions, Aluminium Laboratories, Ltd., P.O. Box 84, Kingston, Ont., Canada.

HEINE, Hans J., M.Sc., Assistant Technical Director and Acting Technical Director, American Foundrymen's Society, 616 S. Michigan Avenue, Chicago 5, Ill., U.S.A.

HODGE, Howard Douglas, B.S., Metallurgist, Titan Metal Manufacturing Company, Bellefonte, Pa., U.S.A.

HOWARD, Robert Turner, Jr., Sc.D., Staff Engineer, Assistant to the Director of Engineering, Bendix Aviation Corporation, Kansas City Division, 95th and Troost, Kansas City, Mo., U.S.A.

HOWARD, Thomas George, A.M.I.M.M., F.R.I.C., Consulting Chemist and Metallurgist; Partner, Riley, Harbord and Law, Parliament Mansions, Abbey Orchard Street, London, S.W.1.

JASDANWALLA, Faizulla Abdullabhai, B.Sc., M.A., L.I.M., Works Manager, The Indian Standard Metal Co., Ltd., Rahimtoola House, Homji Street, Fort, Bombay, India.

KISSLINGER, Fred, M.S., Ph.D., Assistant Professor of Metallurgical Engineering, Illinois Institute of Technology, 3300 South Federal Street, Chicago 16, Ill., U.S.A.

KJELLGREN, Bengt Ragnar Fritiof, Chem. Eng., President, The Brush Beryllium Company, 4301 Perkins Avenue, Cleveland 3, O., U.S.A.

LANE, Joseph Robert, Sc.D., Head, High-Temperature-Alloys Branch, Naval Research Laboratory, Code 3540, Washington 25, D.C., U.S.A.

LEVERETT, Warren Hamilton, M.S., President, National Zinc Company, Inc., 11 Broadway, New York 4, N.Y., U.S.A.

LUERSSEN, George Vandergrift, B.S., E.M., Vice-President in Charge of Metallurgy, The Carpenter Steel Company, Reading, Pa., U.S.A.

MADER, William Arden, B.S., Chief Metallurgist, Oberdorfer Foundries, Inc., Thompson Road, Syracuse 1, N.Y., U.S.A.

MAESTINGER, Hans, Chemist and Metallurgist, Oerlikon Engineering Company, Zürich-Oerlikon, Switzerland.

MARTIN, William Anderson, B.A.Sc., Research Metallurgist, Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto, Ont., Canada.

MINER, William Neill, E.Met., Metallurgist, Staff Member, Los Alamos Scientific Laboratory, P.O. Box 1663, Los Alamos, N. Mex., U.S.A.

MÜGELI, *Professor* Henri, Dr. ès Sci., Directeur, Laboratoire Suisse de Recherches Horlogères, Neuchâtel, Switzerland; Professeur de Métallographie, Université de Neuchâtel.

NEEL, R. Milton, B.S., Chief Metallurgist, Western Brass Mills, Division of Olin Industries, Inc., East Alton, Ill., U.S.A.

OLIVER, Robert Byron, B.Met.E., M.S., Senior Metallurgist, Oak Ridge National Laboratory, P.O. Box P., Oak Ridge, Tenn., U.S.A.

PAINE, Roy Eddy, A.B., E.M., Works Chief Metallurgist, Aluminum Company of America, 5151 Alcoa Avenue, Los Angeles 58, Calif., U.S.A.

PHILLIPS, Garnet Power, M.Sc., General Supervisor, Foundry Research, International Harvester Company, Manufacturing Research Department, 5225 South Western Boulevard, Chicago 9, Ill., U.S.A.

PLACE, George William, B.A., Principal Surveyor, Metallurgy Research, American Bureau of Shipping, 45 Broad Street, New York 4, N.Y., U.S.A.

ROBERTS, George Adam, D.Sc., Chief Metallurgist, Vanadium-Alloys Steel Company, Latrobe, Pa., U.S.A.

ROBERTS, John Scarborough, B.S., Metallurgist, American Manganese Bronze Company, Rhawn Street and Torresdale Avenue, Philadelphia 36, Pa., U.S.A.

ROOT, Don Claude, B.S., Senior Metallurgist, Bohn Aluminum and Brass Corporation, Research Laboratory, 8007 Jos. Campau, Detroit, Mich., U.S.A.

ROSS, Haskell Jackson, M.S., Plant Manager and Chief Metallurgist, R. D. Werner Co., Inc., Osgood Road, Greenville, Pa., U.S.A.

SCHOENMAKER, Pieter, D.Sc., Managing Director, N.V. Nederlandsche Machinefabriek "Artillerie-Inrichtingen", Hembrug-Zaandam, Netherlands.

SEOUDI, Soad, Chief Inspecting Engineer, Egyptian Government, 41 Tothill Street, London, S.W.1.

STAUSS, Henry E., Ph.D., Head, Electric and Magnetic Alloys Branch, Metallurgy Division, Naval Research Laboratory, Washington 20, D.C., U.S.A.

STEEN, Clarence Herbert, B.Sc., United States Air Force, 517 Sixth Street, Brookings, S. Dak., U.S.A.

SUCCOP, John August, B.Sc., Chief Metallurgical Engineer, Heppenstall Company, 4620 Hatfield Street, Pittsburgh 1, Pa., U.S.A.

SULONEN, Martti Seppo, B.Sc., Dipl. Ing., Research Engineer, Airam Lamp Works, Helsinki, Finland; also, Assistant in Physical Metallurgy, Suomen Teknillinean Korkeakoulu (Finland Institute of Technology), Helsinki, Finland.

SUMMEY, Richard W., B.S., Plant Manager, Noranda Copper and Brass, Ltd., P.O. Box 1238, Place d'Armes, Montreal, Que., Canada.

TANAKA, Hiroshi, D.Eng., Chief of the Research Section, Nikko Copper Works, 500 Kiyotaki, Nikko, Tochigi Prefecture, Japan.

TATE, Raymond Eugene, B.S., Metallurgist, Staff Member, Los Alamos Scientific Laboratory, Box 1663, Los Alamos, N. Mex., U.S.A.

THILLAYE DU BOULLAY, René, Ing. Civil des Mines, Administrateur-Directeur-Général, Société Anonyme de Rothem, 17, rue des Guillemins, Liège, Belgium.

As Junior Members

GREENWOOD, Geoffrey Wilson, B.Sc., Scientific Officer, Ministry of Supply, Atomic Energy Research Establishment, Harwell, Didcot, Berks.

SALT, Gordon, B.Sc., Assistant Metallurgist, Northern Aluminium Co., Ltd., Rogerstone, Newport, Mon.

As Student Members

ABBOTT, A. George, S.B., Graduate in Metallurgy, Massachusetts Institute of Technology; c/o United States Air Force.

BALASUNDARAM, Doraiswamy, Student of Metallurgy, Constantine Technical College, Middlesbrough, Yorks.

EELES, Edwin George, B.Sc., Student of Metallurgy, University of Birmingham.

KUMAR, Durga Narayan, B.Sc., 41 Fitzroy Square, London, W.1.

MCPHERSON, Reginald, B.Met.E., Research Student, University of Melbourne, Melbourne, Vic., Australia.

MONKMAN, Forest Clayton, Jr., S.B., S.M., Research Assistant, Department of Metallurgy, Massachusetts Institute of Technology, Cambridge 39, Mass., U.S.A.

PERRY, Timothy Gordon, B.A., Research Assistant, Massachusetts Institute of Technology, Cambridge 39, Mass., U.S.A.

RICHARDS, *Pilot-Officer* Walter Graham, B.Sc., Officers' Mess, Royal Air Force, Wahn, B.A.O.R. 19.

SPREADBOROUGH, John, Student of Metallography and Chemistry, Oxford University.

The following 15 Ordinary Members, and 1 Junior Member were elected on 8 September:

As Ordinary Members

AMOS, Lloyd Arthur, B.S., Reduction Plant Manager, Kaiser Aluminum and Chemical Corp., P.O. Box 1600, Chalmette, La., U.S.A.

ARTHUR, Herbert Henry Gascoign, F.L.A., Borough Librarian and Information Officer, Central Library, Wigan, Lancs.

BERGSMAN, Enar Börje, Chief Metallurgist, AB Svenska Metallverken, Västerås, Sweden.

BRYDEN, William Donald, President, Philadelphia Bronze and Brass Corp., Twenty-second and Master Streets, Philadelphia 21, Pa., U.S.A.

DAAM, I. D., Works Chemist, N. V. Plaatwerkerij en Verzinkerij v/h. P. Bammens & Zoon, Maarssen, Netherlands.

DICKASON, Jonmore, B.Sc., General Manager, Metal Control Laboratories Inc., 2735 East Slauson Avenue, Huntington Park, Calif., U.S.A.

ENGLISH, John P., Met.E., Chief Metallurgist, McCook Plant, Reynolds Metals Company, Brookfield, Ill., U.S.A.

KÖRVER, Friedrich Wilhelm, Ober-Ingenieur und Direktor, Hydraulik G.m.b.H., 72/74 Mülheimerstrasse, Duisburg, Germany.

LANDUYT, (Mrs.) Miriam M., A.B., B.S., Research Librarian, Caterpillar Tractor Company, Peoria 8, Ill., U.S.A.

LANGHAMMER, Anthony J., B.M.E., M.E., President, Amplex Division, Chrysler Corporation, 6501 Harper Avenue, Detroit 11, Mich., U.S.A.

LEFEBVRE, *Professor* Achille Georges, Professeur de Métallurgie, Faculté Polytechnique de Mons, Rue de Houdain, Mons, and Chief Engineer, Solvay et Cie, 33 rue Prince Albert, Bruxelles, Belgium.

MACSWEEN, James Cameron, B.Sc., Assistant to the Technical Director, H. J. Enthoven and Sons, Ltd., 89 Upper Thames Street, London, E.C.4.

SMEDLEY, Ronald James, B.Sc., Metallurgist, John Thompson, Ltd., Ettingshall, Wolverhampton, Staffs.

STADTLER, Walter Andrew, B.S., Manager, Technical Services Laboratory, International Business Machine Corp., Poughkeepsie, N.Y., U.S.A.

THACKER, Horace John Thomas, A.I.M., Metallurgist, Reynolds Rolling Mills, Ltd., Broadwell Works, Oldbury, Worcs.

As Junior Member

STIRLING, Philip Harold, B.Sc., A.R.I.C., Student of Metallurgy, University of Birmingham.

PERSONAL NOTES

MR. W. A. BAKER, Research Manager of the British Non-Ferrous Metals Research Association, has been awarded the D.Sc. degree of London University (Faculty of Engineering) for his published work on melting and casting, deoxidation, soldering, and other subjects.

MR. A. H. CARMICHAEL has been appointed Director of The Cable Makers' Association, 52/54 High Holborn, London, W.C.1. He was previously Director of the Brass and Copper Tube Association.

DR. J. W. CUTHBERTSON has been elected President of the Institute of Metal Finishing for the session 1953–54.

MR. T. S. FULLER has been appointed Consultant to the Research and Metallurgical Departments of Heppenstall Co., Pittsburgh. Mr. Fuller recently retired after 42 years' service with The General Electric Co.

MR. K. S. GANAPATI has been appointed Assistant Works Manager (Metallurgical Testing) at O.F. Khamaria, near Jabalpur, Madhya Pradesh, India.

THE HON. JOHN GRIMSTON, M.P., has been appointed Managing Director of Enfield Rolling Mills, Ltd., in the place of the late Mr. C. E. F. Plutte.

MR. T. J. HIRST has left the Appleby-Frodingham Steel Co. to become Assistant Melting Shop Manager at the Port Talbot plant of the Steel Company of Wales, Ltd.

MR. H. A. HOARE has recently taken a post as Metallurgist to Hoover (Electric Motors), Ltd., Cambuslang, Lanarkshire.

MR. J. P. HUGO has been awarded the Ph.D. degree of Sheffield University.

DR. J. D. JEVONS, Chief Metallurgist, Joseph Lucas, Ltd., has been awarded the Institution of Production Engineers' Medal for the best paper presented by a non-member. His paper was entitled "How the Production Engineer Can be Helped by the Metallurgist". It is the second time Dr. Jevons has received the award.

MR. G. D. MCARDLE is now Metallurgist with The Otis Elevator Co., Ltd., Hamilton, Ont.

DR. ALBERT MULLER has been appointed Director of Metallurgical Research to Air Reduction Co., Inc. He has been Manager of the Company's Metallurgical Division since 1951.

MR. G. OHIRA has now returned to Tohoku University, Japan, after spending a year in the Department of Industrial Metallurgy, University of Birmingham.

MR. F. R. C. SMITH has transferred from Aluminium Laboratories, Ltd., to the associated company, Aluminium Union, Ltd.

MR. J. W. SUITER has been appointed a Research Officer, C.S.I.R.O., Physical Metallurgy Division, Baillieu Laboratory, University of Melbourne.

DR. J. W. W. SULLIVAN has been appointed Metallurgical Engineer to the American Iron and Steel Institute. He has been a member of the staff of the Institute since 1945.

MR. J. N. TABERNER has been awarded the degree of B.Sc. (Tech.).

MAJOR P. LITHERLAND TEED has been awarded the Simms Gold Medal of the Royal Aeronautical Society for a paper on "Fatigue of Aircraft Materials, with Special Reference to Microstructure".

MR. B. C. WOODFINE has been awarded the Ph.D. degree of Sheffield University.

MR. R. W. A. WRIGHT has been appointed Metallographer with Joseph Lucas, Ltd., Birmingham.

MR. A. C. YORKE has been appointed Works Chemist to the Pressed Steel Co., Ltd., Theale.

Death

The Editor regrets to announce the death of:

MR. HENRY JAMES HENBREY, consulting metallurgist, of Waltham Cross, Herts., on 18 August, 1953. He had been a member of the Institute since 1935.

OBITUARY

Mr. C. E. F. Plutte

Mr. Charles Ernest Frederick Plutte, who died on 8 July in tragic circumstances, will be sadly missed. The son of Mr. Frederick Plutte, who, in partnership with the late Lord Verulam, founded the "Enfield" group of companies, he was born on 24 February 1908, and was educated at Leighton Park School, Reading, and St. John's College, Cambridge. At the latter he gained distinction as an oarsman and was a member of The Lady Margaret Boat Club crew which won the Ladies' Plate at Henley Royal Regatta in 1930. While he was still at Cambridge he spent a considerable part of his vacations working in the fitters' shop at Enfield Cables, and as soon as his education was complete, he joined the staff of Enfield Rolling Mills, Ltd., of which he eventually became Managing Director, the position he held at his death. He was also a Director of Enfield Cables, Ltd.

At the time when Mr. Plutte began work at Enfield Rolling Mills, plans had already been made by the Board of Enfield Cables—who at that time controlled the Rolling Mills—for the big expansion which subsequently took place. The early days were not without difficulty, but soon after the Company bought the London Zinc Mills the situation began to improve, and in 1939 the Company was ready to play that important part in the industrial war effort which contributed so much towards its world-wide reputation. It was a source of great pride to Mr. Plutte that the Company since the war had surmounted the many difficulties with which it, in common with the rest of British heavy industry, was faced, and had gone on from strength to strength.

Since the war Mr. Plutte had travelled in many countries throughout the world, particularly in North and South America and Scandinavia, and was most successful in building up the Company's goodwill overseas. At home he was a well-known figure at meetings of the High Conductivity Copper Association, the Rod Rollers' Association, and other bodies connected with the Trade. Mr. Plutte was also well

known to the employees of the Enfield Companies, among whom he was most popular, and he took a considerable part in the public life of Enfield. During the war he was a Major in the 30th Middlesex Battalion, Home Guard, and was renowned for the great enthusiasm which he brought to all its activities. He represented Enfield Rolling Mills on the Enfield District Manufacturers' Association, of which he was Chairman in 1951, and he was the first Chairman of the Enfield East Conservative Association. In all these activities he was always very well liked by the many people, from all walks of life, with whom he came in contact. To all of them his untimely end is a bitter blow.

Mr. Plutte married in 1938, and his widow and three sons survive him.

WILLIAM FOSTER

NEWS OF KINDRED SOCIETIES

Institute of Metal Finishing

The Institute of Metal Finishing announces that the following have been elected on the Council for 1953–54:

President: Dr. J. W. Cuthbertson.
Immediate Past-President: Mr. H. Silman.
Vice-Presidents: Dr. S. G. Clarke, Dr. G. E. Gardam, Mr. R. A. F. Hammond, Dr. T. P. Hoar, Mr. F. Mason, Mr. R. W. Nicol, Mr. E. A. Ollard, Mr. C. Wharrad.
Hon. Secretary: Dr. S. Wernick.
Hon. Treasurer: Mr. F. L. James.
Members of Council: Mr. W. F. B. Baker, Mr. H. Cann, Dr. L. B. Hunt, Mr. L. Mable, Mr. J. W. Perring, Mr. J. M. Sprague, Mr. N. A. Tope, Mr. A. W. Wallbank, Mr. I. T. Watkins.

OTHER NEWS

The Platinum Metals Exhibition

The Institution of Metallurgists announce that H.R.H. The Duke of Edinburgh has graciously consented to open their Platinum Metals Exhibition at Grosvenor House on Monday, 19 October 1953. The exhibition is being held to mark the Triple Jubilee of William Hyde Wollaston's announcement of his discovery of the precious metal palladium.

The exhibition, which will be open to the public from Thursday, 22 October to Saturday, 24 October, will show the vital part played by the platinum metals in science and industry today.

Corrosion and Modern Aspects of Physical Metallurgy

The City of Gloucester Technical College is holding a special course of lectures under the above title at fortnightly intervals during the winter months. The lectures will be given in the Chemistry Lecture Theatre on alternate Tuesday evenings at 7.15, the first being on 29 September. The first six lectures will deal with various aspects of corrosion and protection and the remainder with modern views on the metallic state, strength and deformation of metals, cold working, and powder metallurgy. The fee for the course is 2½ guineas, and details may be obtained from the Principal of the College.

Non-Ferrous Metal Industry in India

A symposium on "Non-Ferrous Metal Industry in India" is to be held in January 1954, under the auspices of the National Metallurgical Laboratory at Jamshedpur, with the object of focusing attention on the present state of the industry and of discussing ways and means for stimulating its growth to meet present and future requirements. The scope of the symposium is as follows: (1) non-ferrous mineral wealth of India; (2) beneficiation, extraction, and refining of non-ferrous metals; (3) applications of thermodynamic principles to extraction and refining of non-ferrous metals; (4) melting and foundry technique of non-ferrous metals and alloys, including refractory materials employed; (5) thermal treatment and fabrication technique of non-ferrous metals and alloys such as extrusion, welding, deep-drawing, wire-drawing, &c.; (6) applications of powder-metallurgy technique to non-ferrous metals and alloys; (7) protective coatings for non-ferrous metals and alloys, such as cladding, plating, electrolytic and hot-dip coatings, &c.; (8) present status and scope of future expansion of non-ferrous metal industry in India in relation to the Government of India's Five Year Plan; (9) economics of Indian non-ferrous metal industry—utilization of by-products and reclamation of wastes; (10) researches into the development of modern non-ferrous alloys.

Papers on these subjects will be welcomed, and should be sent to the organizers before 15 November, so that the final programme can be drawn up. The exact date of the symposium will be announced later.

Chemical and Metallurgical Thermodynamics

A series of eight weekly lectures on Chemical and Metallurgical Thermodynamics is being given on Wednesday evenings during October and November at the Northampton Polytechnic, St. John Street, London, E.C.1, by Dr. O. Kubaschewski of the National Physical Laboratory. The fee for the course is £1 11*s.* 6*d.*

DIARY

Local Sections and Associated Societies

A copy of the Programme of Meetings of Local Sections and Associated Societies for 1953–54 is being sent as usual to all Members resident in the British Isles. Overseas Members may obtain a copy by application to the Secretary.

1 October. London Local Section. "Intermetallic Diffusion", by A. D. Le Claire. (4 Grosvenor Gardens, London, S.W.1, at 7.0 p.m.)

6 October. Oxford Local Section. "Low-Temperature Physics Generally", by Dr. J. Wilks. (Cadena Café, Cornmarket Street, Oxford, at 7.0 p.m.)

6 October. South Wales Local Section. "The Heat-Treatment and Hot Working of the Nimonic Alloys", by T. E. Cound. (University College, Metallurgy Department, Singleton Park, Swansea, at 6.30 p.m.)

8 October. Leeds Metallurgical Society. Presidential Address by H. D. Ward. (Chemistry Department, The University, Leeds 2, at 7.15 p.m.)

8 October. Liverpool Metallurgical Society. Presidential Address by H. J. Miller. (Liverpool Engineering Society, The Temple, Dale Street, Liverpool, at 7 p.m.)

14 October. Liverpool Metallurgical Society. Visit to British Insulated Callender's Cables, Ltd., Prescot.

14 October. Manchester Metallurgical Society. Presidential Address by W. B. Wragge. (Lecture Room of the Central Library, Manchester, at 6.30 p.m.)

16 October. North-East Metallurgical Society. "The Production and Properties of Titanium", by Dr. N. P. Inglis. (Constantine Technical College, Middlesbrough, at 7.15 p.m.)

19 October. Scottish Local Section. Visit to Barr and Stroud, Ltd., Anniesland, Glasgow.

Other Societies

6 October. Institute of Metal Finishing, Birmingham Branch. "Choice of Metal-Cleaning Processes", by P. D. Liddiard. (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)

7 October. Institute of Metal Finishing, Glasgow Branch. Chairman's Address by H. C. Fairlie. (39 Elmbank Crescent, Glasgow C.2, at 7.0 p.m.)

8 October. Institute of Metal Finishing, Manchester Branch. Chairman's Address by B. J. Jones. (Engineers' Club, Albert Square, Manchester, at 7.30 p.m.)

1 October. Institute of Metal Finishing. Annual Autumn Meeting. (Charing Cross Hotel, London, W.C.2.)

15 October. Institution of Mining and Metallurgy. General Meeting. (Geological Society, Burlington House, Piccadilly, W.1, at 5.30 p.m.)

19 October. Institute of Metal Finishing, London Branch. "The Phosphating of Steel Prior to Painting", by H. A. Holden, and "The Protective Properties of Various Phosphate Coatings on Steel" by J. F. Andrew, S. G. Clarke, and E. E. Longhurst. (Joint Meeting with the Corrosion Group of the Society of Chemical Industry.) (Burlington House, Piccadilly, London, W.1, at 6.30 p.m.)

30 October. Institute of Metal Finishing, Sheffield Branch. "The Plater on His 'Mettle'", by J. Pigott. (Fitzwilliam Room, Grand Hotel, Sheffield, at 6.30 p.m.)

APPOINTMENTS VACANT

CHEMIST-ANALYST. A graduate or A.R.I.C. with good general education required by a City of London Livery Company to assist in work of national importance. Must have completed his National Service and should preferably be aged 21–25. Commencing salary £500 per annum or over, according to experience; attractive conditions of employment with good ultimate prospects for suitable man. Applications should include fullest details of family, age, education, qualifications, and experience. Box No. 353, The Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

FRY'S DIECASTINGS, LTD., has a vacancy for a young metallurgist, aged 20–25 years. Duties for the first few years will include acting as information and development officer, centred at branch foundry in the Midlands, in connection with a new process for casting in semi-permanent ceramic moulds. Later opportunities at main pressure diecasting works in London. Write: Fry's Diecastings, Ltd., Brierley Hill Rd., Wordsley, Stourbridge.

GRADUATE METALLURGISTS are required for research on tungsten, molybdenum, and other high-temperature materials. Research experience is an advantage but not essential. Apply giving age, qualifications, and experience, and quote reference MT, to The Director of Research, The British Thomson-Houston Co., Ltd., Rugby.

IMPERIAL SMELTING CORPORATION, LTD., manufacturers of non-ferrous metals and heavy chemicals, require the services of a Metallurgist at their Swansea Works. Principal duties will be the investigation of problems in connection with metallurgical plant and submission of technical reports, though the starting up and supervision of new plant may sometimes be involved. Candidates must possess a degree, preferably with honours, or equivalent qualification, and must be familiar with the use of pyrometers, recorders, and similar instruments. Apply for application forms to Personnel Manager, I.S.C. Ltd., Avonmouth, Bristol, quoting reference MET/IM.

METALLURGIST required by Heavy General Engineering Firm on Tees-Side. Qualifications: Degree or H.N.C. in metallurgy. Experience: General foundry practice and high-quality welding an advantage. Age 28–35. Apply giving full details of experience and salary required to Box No. 354, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

METALLURGIST required for control and development of works processes, including casting, rolling, extruding, heat-treatment of aluminium and aluminium alloys. Applicants should not be over 30 years of age, and must possess degree. Please write giving full details career, and salary expected, to Personnel Manager, Northern Aluminium Co., Ltd., Banbury.

MINISTRY OF SUPPLY, R.A.E., Farnborough, Hants, requires ASSISTANT EXPERIMENTAL OFFICER (preferably aged over 21) for Metallurgy Dept., (Creep Laboratory). Qualifications: at least Higher School Cert. (Science), or equivalent. Knowledge of mechanical test work desirable. Salary within range, £264–£576. Women somewhat less. Appointment unestablished. Application forms from M.L.N.S., Technical and Scientific Register (K), 26, King Street, London, S.W.1, quoting F.426/53A. Closing date 15 October 1953.

THE METALS DIVISION of Imperial Chemical Industries, Ltd., invites applications from metallurgists to fill vacancies existing in the aluminium, copper, and titanium sections of its Research Department, Birmingham. Candidates should preferably possess an honours degree or an equivalent qualification and will be paid a commencing salary of up to £1100 per annum, depending on age, qualification, and experience; opportunities also exist for advancement beyond this level. Applications in writing should be addressed to Assistant Staff Manager, I.C.I. Metals Division, Witton, Birmingham 6.

YOUNG GRADUATE, preferably with some experience, required for precious metals research team at North Acton. Salary according to qualifications and experience. Apply giving full details to Manager, Development and Research Department, The Mond Nickel Company, Ltd., Sunderland House, Curzon Street, London, W.1. Mark envelope "Confidential PM",